

CLINICAL SURVEILLANCE: BRINGING DATA TOGETHER TO CONTROL HIV

OVERVIEW

Achieving control of the HIV epidemic requires high-quality data to guide public health decision makers. HIV control programs generate large amounts of potentially useful data while providing services to people living with HIV (PLHIV). In fact, some of the most important information needed to understand the HIV epidemic as well as the impact of HIV programs, such as HIV diagnosis, viral load suppression, retention on treatment, and mortality, exist in the clinical records of facilities providing HIV-related services; however, these data frequently exist in medical and laboratory records that are not easily accessed and used. Clinical surveillance systems access data from programs, such as antenatal care/prevention of mother-to-child transmission (ANC/PMTCT), HIV testing and counseling, laboratory, and as well as care and treatment programs, and organize them for analysis and use. In HIV programs supported by the U.S. President's Emergency Plan for AIDS Relief (PEPFAR), surveillance systems include ANC/PMTCT sentinel surveillance, case-based surveillance systems, laboratory-based HIV surveillance, and viral load suppression surveillance. Clinical surveillance systems also link to data from other public health data sources, such as vital registration systems and tuberculosis control programs, to track data collected outside of HIV programs that are critical to measuring the impact of HIV control interventions. Clinical surveillance systems collect and make available data that help estimate the burden and distribution of HIV; monitor the uptake of key HIV prevention, treatment, and laboratory services; and measure key clinical and public health HIV-related outcomes.

CDC'S ROLE

The U.S. Centers for Disease Control and Prevention (CDC) has supported the establishment of routine, sustainable ANC/PMTCT sentinel surveillance in PEPFAR-supported countries. Data from these systems are one of the key sources of information for models generating global and national HIV estimates.

CDC has pioneered the development and implementation of case-based surveillance systems in PEPFAR-supported countries. By linking patient data from patient monitoring, laboratory information, and vital statistics systems, case-based surveillance allows countries to monitor individual patients from diagnosis through the cascade of HIV prevention and treatment services. This monitoring helps measure individual and public health outcomes.

CDC is developing methods to measure viral load suppression among PLHIV in low-resource settings where viral load testing is not universally available. Examples of specific clinical surveillance activities include:

- (1) Monitoring outcomes in subpopulations and subnational regions. Working with five PEPFAR supported countries to strengthen the clinical cascade in key and priority populations. This activity aims to improve the capacity for existing health systems to collect and align individual-level data from disparate sources to follow an individual's HIV services across community and facility settings.
- (2) Monitoring viral load access and performance. Many countries are in the initial phase of implementing viral load monitoring for HIV treatment. Intensive monitoring and surveillance is needed to ensure validity, accuracy, and utility of these data.
- (3) Monitoring mortality in PLHIV. Working on mortality surveillance in three PEPFAR countries to understand the causes of death for PLHIV in order to improve care.
- (4) Supported development of the 2015 World Health Organization (WHO) guidance on assessment of routine data for use in ANC/PMTCT surveillance. Provided ongoing technical assistance to 18 PEPFAR countries to conduct such assessments.

ACCOMPLISHMENTS / RESULTS

CDC worked with WHO, UNAIDS and other partners to develop guidelines for assessing the utility of PMTCT program data for surveillance,¹ as well as guidelines on using PMTCT program data for HIV surveillance among pregnant women.² These two documents established global

¹ Guidelines for assessing the utility of data from prevention of mother-to-child transmission (PMTCT) programmes for HIV sentinel surveillance among pregnant women, http://apps.who.int/iris/bitstream/10665/85512/1/9789241505611_eng.pdf

² Guidelines for conducting HIV surveillance among pregnant women attending antenatal clinics based on routine programme data, http://www.unaids.org/sites/default/files/media_asset/SurveillanceRoutineProgrammeData_en.pdf

standards and technical guidance for conducting HIV surveillance among pregnant women. Additionally, CDC developed a strategy document³ that translates and adapts these global guidance documents for use by PEPFAR-supported countries. CDC expects that all PEPFAR-supported countries that rely upon HIV surveillance data among pregnant women will adopt these standards in the next two to three years.

Using routine PMTCT data for surveillance in the PEPFAR context

Using routine PMTCT data for surveillance is ethical, resource-efficient, and sustainable. However, many PEPFAR-supported countries still face gaps in the quality of routine PMTCT data systems and HIV testing. The CDC strategy will allow for the use of PMTCT data for surveillance while instituting additional quality control measures to identify and address gaps in routine PMTCT data and HIV testing.

CDC is supporting the development of WHO guidelines for HIV case-based surveillance and has developed a strategy for implementing HIV case-based surveillance in PEPFAR supported countries.⁴ Utilizing this strategy, CDC is supporting the development of HIV case-based surveillance in Ethiopia, Haiti, Kenya, Malawi, Nigeria, Senegal, and Swaziland, and supports feasibility projects in Ethiopia, Haiti and Kenya. CDC, in partnership with the National Association of State and Territorial AIDS Directors, has developed a technical “how to” guide⁵ for countries building and strengthening HIV case-based surveillance systems.

CDC has supported Haiti to develop a mature HIV case-based surveillance system. Key information generated by this system include:

- New HIV diagnoses by age, sex, and geographic location
- CD4 count at diagnosis
- Antiretroviral treatment linkage, coverage and retention
- HIV clinical cascade among general and key populations

Finally, CDC has developed template protocols and technical guidance for PEPFAR-supported countries in the implementation of clinical surveillance systems to measure HIV-associated mortality, the burden of pediatric HIV, and viral suppression among people living with HIV on treatment.

FUTURE EFFORTS

A major barrier to the implementation of clinical surveillance systems, as well as other uses of clinical and laboratory data for public health purposes, is the lack of highly developed and integrated laboratory, clinical, and reporting systems. CDC is working with WHO, UNAIDS, and others to develop guidance for patient monitoring, as well as standards for unique identifiers, data security, and interoperability. CDC also is working with PEPFAR-supported countries to develop surveillance strategic plans. These plans aim to support surveillance as well as monitoring and evaluation systems that collect and provide the data necessary to guide both PEPFAR and partner government HIV control activities.

BENEFITS OF OUR WORK

Clinical surveillance systems allow PEPFAR-supported countries to more effectively control HIV, contributing to global epidemic control and increasing the impact of PEPFAR investments in controlling the global HIV epidemic and reaching global HIV goals.

³ Division of Global HIV & Tuberculosis strategy for ANC surveillance based on routine program data: prospective sentinel surveillance design in a quality monitoring and strengthening framework

⁴ Division of Global HIV & Tuberculosis Strategy for Implementing HIV Case-based Surveillance as Part of a National HIV Disease Surveillance Portfolio

⁵ Case-Based Surveillance Toolkit: Tools, Tips and Strategies for Strong Surveillance